Basic Lab Considerations:

**1. Set up**

a. An arm cuff, stethoscope, and stop watch will be needed for each group. If there are 30 students in my class I will need 15 of each. A spirometer will be used to measure lung capacity but this part of the lab is relatively short so groups will cycle through its use, thus only 1 is needed.

b. Minimal space is needed in the room except when students are expected to exercise. If necessary, they can run up and down the hallway or jog in place if there is room.

c. The only lab station is where the spirometer will be in the back of the room.

d. There should be adequate work space at a normal lab bench.

**2. Material distribution**

a. Arm cuff, stethoscope, stop watch, and the lab hand out (which contains a graph paper.) Only 1 spirometer is needed in the back of the room.

b. The spirometer will be set up in the back of the room. Students will have all the other materials set up at their lab stations.

**3. Pre Lab**

a. The students will be expected to understand some basic human anatomy/physiology of how the heart and lungs work. They will also be expected to figure out if they are eligible to become astronauts.

b. Be sure to never inhale with your mouth over the tube of the spirometer, this will cause you to suck in water. Also, when the students are told to exercise they should be careful about not running into each other.

c. The spirometer will be set up before the students arrive. All it needs is to be filled up with water. A stethoscope, arm cuff, and stop watch will be placed for every 2 lab seats.

d. Hopefully each group’s data collection will be finished within the lab hour but if it is not we will continue with data collection the next day. If data collection is completed then the other parts of the lab can be completed for homework.

e. It fits into an unit learning about the human body (or animal body.) This also helps students learn scientific literacy skills.

f. Clean up is easy. I will just put the stop watches, arm cuffs, and stethoscopes back in their bags and put them away. The water in the spirometer will be poured out and the unit can be put away.

**4. Hand outs**

a. All lab hand outs will already be at lab stations.

b. The lab hand out has an area for all data to be recorded.

c. Graph paper will be supplied and there are inquiry based questions associated with lab itself that students must answer after they have an understanding of the lab.

**5. Assessment**

a. If students are off topic and/or goofing off with the equipment I reserve the right to deduct points off their lab score. Most of the questions in the lab can be graded for correctness but the other portion will be graded based on completion. For example, I cannot take off points if the students had poor blood pressure measurements but I can take off points if their graph does no match their data.

b. They will make graphs, do calculations, and answer questions.

c. A post lab discussion will be held that goes through the questions at the end of the lab. Also, when they turn in their labs I will be able to look for right answers and access whether or not the students are understanding concepts.

6. Post lab

a. At the end of the lab a discussion of the follow-up questions at the end of the lab will be held.

b. When this lab is first assigned most of the material should appear foreign to the students. By the end they should have a better understanding of the concepts. As per my syllabus I have quizzes every Wednesday and Friday. These quizzes are not worth very many points but are helpful in me having an understanding of student progress.

c. If the lab data collection portion of the lab was not finished in time I will allow for this lab to take up to a second class period. If the students at least finish the data collection portion of the lab they should be able to do the rest of the lab for homework. If the student does not finish their lab then they lose points for whatever they did not complete. Even after a class discussion the student cannot fill in answers as they are discussed because some answers are specific to their own data.

d. Tomorrow the lab will be due. The day after the lab we will look at what was found in the lab. I will discuss/lecture blood circulation, heartbeat, etc.